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IDEA 2983-66
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4 APR 1966

MEMORANDUM FOR: Chief, Programs Staff, OSA

SUBJECT: IDEALIST Operational Summary and Status (March 1966)

REFERENCE: Memorandum from D/SA to D/FA/OSA and D/TECH; dated 26 May 1965; Subject: OSA Monthly Report to DD/S&T and Program B Quarterly Review Report to D/NRO [redacted] 25X1A

Attached is the IDEALIST Operational Summary and Status report for the month of March 1966.

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Colonel USAF
Deputy for Field Activities, OSA

Attachment - 1
As stated above

25X1A IDEA/OSA/[redacted]:aea(4 Apr 66)
#1 - C/PS/OSA
#2 - D/FA/OSA
#3 - SAB/OSA
#4 - IDEA/OSA
#5 - RB/OSA
#6 - Holdback

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IDEA 2983-66
Attachment 1

IDEALIST

OPERATIONAL SUMMARY AND STATUS

I. General Summary

A. There was an Agency U-2 overflight (C036C) on 28 March 1966. Considerable navigational problems were encountered, caused by combined factors of weather, interceptors and fuel. In spite of the above factors, the mission was considered successful.

B. A final investigative report on the crash of U-2F number 372, [redacted] found the primary cause to be pilots failure to accomplish a satisfactory flame out landing complicated by weather, cockpit fogging and possible disorientation. Briefly, the board recommended analysis of EGT indicators and increased ground and flight training. 25X1

C. The investigation board on the crash of U-2F number 342 found the primary cause of the accident was the type of maneuver executed by the pilot. A recommendation was that the "G" limitations as indicated by the flight strength diagrams in the pilots handbook be reduced when a rolling maneuver is being executed. An additional recommendation was to be sure that fuel placement is not in a condition whereby the auxilliary tanks are full and the main tanks empty.

25X1C D. [redacted] successfully ejected from U-2A number 363 (SAC) while on a training mission out of Davis Monthan AFB, Arizona. The primary cause was pilot factor, in that the pilot used improper procedures during recovery from a practice stall, lost control of the aircraft and entered a spin from which recovery was not effected. It was recommended that a two seat U 2 trainer be provided for the purpose of airborne supervision and training in such matters as stalls, etc.

II. Product Improvement

A. Article 349 with J-75 - 13B engine installed was flown 11 March 1966 carrying full internal fuel load. Purpose of this flight was to evaluate the Doppler Navigation System, engine pressure ratio performance and cruise climb characteristics at 665 degrees centigrade. The following comprise significant observations:

1. Cruise Climb: Wing buffeting was encountered during the heavy cruise climb when the engine was operated at 665 degrees centigrade EGT on standard climb schedule. The buffet was moderate to heavy from altitude plus 17 through plus 21.2. The preselect autopilot turns could not be made utilizing 665 degrees centigrade EGT. Reducing climb speed was not effective in avoiding buffet and an EGT reduction to 610 degrees was required to obtain standard characteristics.

2. Weight/Altitude Performance: The weight/altitude performance of Article 349 with the "13B" engine at 610°C EGT is equivalent to the standard configuration performance with a "13A" engine at 640°C EGT. Increasing the EGT reduces the speed margin between the operating conditions and the buffet boundaries and considerably reduces the maneuvering capability. On Article 349, increasing EGT from 610° to 665° will increase the cruise altitude 500 feet and result in buffet at the new cruise climb altitude. The buffet intensity is increased considerably if the aircraft is put in a turn. Speed changes above schedule result in an increase of buffet. Tuck or reductions in speed do not appreciably reduce buffet. The wing leading edge modifications improve the low speed stall characteristics, but do not change the characteristics at cruise Mach number.

3. Doppler Navigation System: The doppler system memory light came on during the climb at plus 10 and remained on for the duration of the flight. An extensive temperature survey indicated that the

temperatures in the doppler receiver-transmitter were not excessive. After letdown from altitude, the doppler system was cycled to "off" and "test", however, the memory light remained on. Postflight inspection revealed a physically damaged diode and a bent convector pin had caused the problems. Additional doppler system evaluations were also scheduled on Article 359, but had to be postponed pending other maintenance actions on that aircraft. Future schedules also call for evaluation of the ASN/66 computer in this system.

4. Engine Pressure Ratio: EPR data was collected at plus 21, plus 15, plus 10 and 35M, for one air speed at each altitude and through a varied range of EGT's. A copy of the automatic recording with the EPR data was forwarded to Pratt & Whitney.

B. On 28 March 1966, Article 349 was flown for 5 hours to evaluate System 20 temperature environment and to determine fuel and time consumed in climb to plus 19.

1. System 20 Observations: The System 20 pod temperatures with simulated system heat dissipation were within required limits. The test envelope included a cruise climb until the temperature leveled off, a descent to simulatedan ARS operation, and a climb back to altitude until the temperatures stabilized.

2. Fuel/Time Consumption: Zero fuel weight (ZFW) of Article 349 was 14,242 lbs. and take off fuel was 1,300 gallons. A climb through "Bad Lands" was attempted at 610°C. However, a slight engine rumble developed and the EGT was reduced to 600°C until attaining altitude plus 10, where it was increased to 610°C for cruise climb. Altitude plus 19 was reached in approximately 2 plus 05 with 700 gallons of fuel remaining.

C. Sel-Cal R/T Interrogator: Flight tests were performed on 17 and 18 March to evaluate this equipment. The interrogator functioned properly during both flights and during the ground

checks. Although a "de-muting" problem was encountered with the Sel-Cal Decoder during the last portion of one flight, the problem was not related to the interrogator.

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